

# A corporate sustainability maturity model for readiness assessment: a three-step development strategy

Corporate  
sustainability  
maturity model

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## Abstract

**Purpose** – One of the main challenges of organisations today is how to navigate their development into ideal sustainable organisations. However, each readiness level requires a different rubric of indicators. Therefore, this study develops a corporate sustainability maturity model (CSMM), which can be used by organisations to conduct self-assessments, identify their current sustainability maturity levels and transition into mature sustainable organisations.

**Design/methodology/approach** – This CSMM comprises various maturity domains, sub-domains and levels as well as a rubric of indicators for assessing the maturity of corporate sustainability. In its development, a systematic literature review examined existing maturity models, after which a pilot study, based on the literature review, content analysis and expert interviews, was used to create a prototype of the CSMM. Finally, the model was refined and expanded by considering practitioners' feedback and the tendencies of other sustainability maturity models.

**Findings** – On the basis of the findings, some Indonesian organisations conducted sustainability activities, without having a strategic plan. Moreover, the factors driving organisations to conduct sustainability efforts included external and internal pressure. However, typical factors, such as awareness of sustainability and organisational reputation gained from conducting sustainability activities, were insignificant in the sample.

**Originality/value** – This CSMM is the first sustainability maturity model developed for readiness assessment in an Indonesian context. Through this CSMM, organisations can determine their current readiness level of sustainability maturity and choose the correct indicators to help improve each sustainability domain in the matrix.

**Keywords** Corporate sustainability, Maturity model, Systematic literature review, Structural equation modeling

**Paper type** Research paper

## 1. Introduction

Considered an essential part of society, corporations are urged to be more responsible in managing their business processes in a sustainable manner, without compromising economic sustainability (Elkington, 1997). The economic activities of corporations have also been subject to increasing pressure from stakeholders, especially in regard to ecological and social sustainability (Epstein, 2008). Meanwhile, Garcia *et al.* (2016) stated that organisations *can* lower their impact on the environment and increase their contribution to society by incorporating corporate sustainability.

The discourses regarding *how* a corporation can incorporate sustainability initiatives, however, have changed over time. Young and Tilley (2006) claimed that corporate



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sustainability strategies have shifted from pollution control (from the 1960s to the 1970s) to eco- and social-efficiency (from the mid-1980s to the 1990s). Such examples include waste management, emission reduction and society engagement. In addition to eco- and socio-efficiency, [Dyllick and Hockerts \(2002\)](#) mentioned the aspects of sufficiency and ecological equity in regard to sufficient consumption by individuals and continuity resources for future generations, respectively. Moreover, [Epstein and Buhovac \(2008\)](#) stated that the emphasis is no longer on *whether* organisations must consider sustainability issues and their consequences but on *how* organisations can integrate environmental, social and economic responsibilities into their day-to-day management decision-making. From an organisational perspective, this is the essence of corporate sustainability ([Roca and Searcy, 2012](#)).

Corporate sustainability has been defined as the equilibrium among economic returns (i.e. profits), environmental protection (i.e. the planet) and social development (i.e. the people), without endangering future development. According to [Dyllick and Hockerts \(2002\)](#), this term refers to being a sustainable corporation, which is not only consistent with the triple bottom line concept but is also a business orientation that meets stakeholders' needs over the long term. For [Laszlo and Zhexembayeva \(2011\)](#), there is an increasing need to embed sustainability into core business practices in order to contribute to sustainable development. Meanwhile, [Edgeman and Williams \(2014\)](#) described corporate sustainability as an organisation's capacity to create and maintain economic, environmental and social value for itself, its stakeholders and society at large, both in the short and long terms.

To date, it is still unclear how an organisation can assess the trade-off between sustainability and financial performance as well as determine how stakeholders will respond. [Salzmann et al. \(2005\)](#) stated that previous studies have attempted to explain the positive impact of the social dimension (i.e. the people) and the environment (i.e. the planet) on economic performance (i.e. profits). In this regard, the influence of the social dimension on financial performance mostly refers to the application of corporate social responsibility ([Carroll and Shabana, 2010](#)). Meanwhile, the studies conducted by [Aras et al. \(2010\)](#) and [Michelon et al. \(2013\)](#) proved that the practice of corporate sustainability (in the form of social responsibility) leads to better organisational performance as well as increased brand image and reputation. Moreover, the studies by [Iraldo et al. \(2009\)](#) and [De Oliveira et al. \(2010\)](#) showed that, through so-called green business processes, organisations can obtain economic benefits, including increased productivity, cost reductions and innovation. Conversely, [Maletic et al. \(2014\)](#) mentioned that efforts to conceptualise corporate sustainability practices are still rarely found in the literature. [Epstein and Buhovac \(2008\)](#) also stated that strategic level management has been unable to develop corporate sustainability, mainly due to the difficulty of focusing on financial performance, while achieving excellence in the 3Ps (i.e. the people, the planet and profits). As a result, many profit-oriented corporations have been neglecting the practice of corporate sustainability. Thus, a roadmap of *how* they can embrace sustainability practices is necessary in order to help them navigate their development into ideal sustainable organisations.

Indonesian corporations also face similar challenges in navigating towards sustainable practices. For example, as of October 2017, RobecoSAM's Corporate Sustainability Assessment ranked Indonesia 54th out of 65 countries, based on the environmental, social and governance dimensions of more than 2,000 companies and by weighting the interests of each dimension by 15%, 25% and 60% ([RobecoSAM, 2017](#)). More specifically, in the environmental dimension, RobecoSAM assesses environmental status, energy use and resources as well as environmental risk. As for the social dimension, the measurement indicators include employee welfare, equality, human development and local jobs. Meanwhile, the governance dimension holds the highest weight, which includes

competitiveness, political risk, liberty and inequality, effectiveness, the rule of law, accountability, corruption, stability, regulatory quality, aging and institution.

The placement of Indonesia in the bottom 12 of RobecoSAM's ranking raises the question of whether it is associated with the low awareness of corporate sustainability implementation in the country as a whole. To date, no related publications have measured the awareness of corporate sustainability implementation in an Indonesian context. It is important to note, however, that such awareness cannot be simply measured through assessments and evaluations such as RobecoSAM's Corporate Sustainability Assessment.

According to a 2016 report by Ernst and Young Global Limited, only 30% of the top 100 companies listed in the Indonesian Stock Exchange provided sustainability reports ([MajalahCSR.id, 2017](#)). However, after examining approximately 50 sustainability reports produced by Indonesian organisations from 2010 to 2017, several noteworthy observations can be made. First, the majority of the organisations have mistakenly considered corporate social responsibility programmes as corporate sustainability deeds, both in the form of community development programmes and philanthropic activities. This was most likely due to two reasons: (1) the Indonesian government's 1999 regulation requiring state-owned enterprises to conduct corporate social responsibility and (2) private organisations employing various corporate social responsibility programmes but mistakenly referring to them as corporate sustainability strategies. Second, according to the sustainability reports from 2005 to 2013, the industry sectors of Indonesian organisations that had participated in developing the sustainability reports were not only the organisations involved in exploring natural resources but also those in the infrastructure, consumer goods, banking, electronics and property sectors. Third, several Indonesian companies utilised comprehensive approaches and strategic frameworks that not only integrated sustainability strategies into their business processes but also synergised environmental alignment and community empowerment activities in order to achieve organisational profits. Finally, there were several organisations that conducted corporate sustainability activities through various approaches, models and interpretations, without producing sustainability reports or conducting sustainability assessments. On the basis of these findings, many Indonesian organisations are not fully aware of the importance of sustainability benefits.

In order to support organisations that want to grow their businesses more sustainably, they must strategise the implementation of corporate sustainability, which is normally part of the business process improvement strategy. According to [Harrinton \*et al.\* \(1997\)](#), this strategy includes systematic steps designed to improve business processes such as benchmarking, redesigning and process engineering. It also encourages more efficient workflow and overall business growth. Moreover, [Adesola and Baines \(2005\)](#) stated that this strategy requires several stages, the first of which is the readiness assessment stage. In this regard, the readiness of an organisation can be measured through a well-designed assessment tool, after which the results can serve as the foundation for improvement.

Previous literature review ([Sari \*et al.\*, 2019](#)) has indicated that the development of sustainability assessment includes criteria-based and model-based approaches. Both approaches have their respective strengths and weaknesses. For example, it is easy for the criteria-based approach to formulate a series of indicators, but it may be difficult because of the similarities between certain indicators and subjectivity in the selection process. Meanwhile, although the model-based approach tends to formulate better indicators (since it refers to a validated model), it may be difficult to justify the ideals of the model. However, the model-based approach is more suitable than the criteria-based approach because the model not only acts as a distinguishing identifier between other models but also describes the dimensions, attributes and relationships between them.

On the basis of their literature review, [Benmoussa \*et al.\* \(2015\)](#) mentioned that models for business process assessments generally include two categories: performance measurement-

driven and maturity measurement-driven models. As for their differences, performance measurement refers to utilising all organisational efforts (both efficiently and effectively) in order to achieve organisational goals and satisfy the customers and stakeholders. Performance measurements are usually based on performance indicators (Cerutti and Gattino, 1992). According to the Capability Maturity Model, maturity measurement refers to what extent specific processes are explicitly defined, managed, measured, controlled and improved (Paulk *et al.*, 1995). Maturity measurements are generally based on the achievement of existing requirements at specified levels, i.e. the performance relative to the objectives at each maturity level (Benmoussa *et al.*, 2015).

In terms of objectives, performance measurement-driven models (the most popular one being the Balanced Scorecard model) describe the process of gathering, analysing and presenting information about the performance of individuals, organisations or systems. In addition, a series of indicators, along with their targets and achievements, is generally used to monitor the progress of achieving certain strategies (Moullin, 2007; Kaplan and Norton, 2000). Conversely, maturity measurement-driven models are multistage conceptual models that describe systematic patterns and hierarchies in the development of organisational capabilities. Maturity models also identify the performance indicators at each maturity level that are achievable by organisations and their employees (Poppelbuss and Roglinger, 2011; Becker *et al.*, 2009). Moreover, Comuzzi and Patel (2016) emphasised the two-fold benefits of maturity models, namely, descriptive and prescriptive benefits. Regarding the descriptive benefits, they describe the current achievements of organisations regarding specific capabilities. As for the prescriptive benefits, they highlight the necessary steps for improving organisational maturity. On the basis of these reasons, a maturity measurement-driven model is a more suitable approach for developing or expanding a corporate sustainability model.

Finally, the aforementioned study used the systematic literature review method (Tranfield *et al.*, 2003; Morioka, 2016; Sari *et al.*, 2019), which was carried out on two databases: (1) Science Direct (2010–2016), with the keywords *sustainability indicators* (or *sustainability metric*) and *sustainability assessment* (or *sustainability performance* or *sustainability performance measurement*), for a total of 875 potential articles (with no model addressing the measurement of the maturity aspect); and (2) Emerald (2013–2018), with the keywords *Abstract: sustainability maturity model* and *Publication title: maturity*, did not produce any potential article.

Thus, the motivation of this research work was formulated in the following research questions: (1) What is the framework of the corporate sustainability model that has been developed and published to date? Who is the root author, and what is the root theory related to the corporate sustainability model that will be the reference for developing the desired model?, (2) Is it true that there is still scarcity of research related to maturity models? What is the methodology for developing relevant maturity models? The identification of this gap is expected to be able to show the position and novelty of this study, (3) What is the conceptual framework of the Corporate Sustainability Maturity Model (CSMM), and how will the conceptual model be built? How do you use it as a readiness assessment tool for organisations in Indonesia?. Therefore, the purpose of this study is to obtain a conceptual model framework of the CSMM where the model can be used by organisations as a readiness assessment tool with two benefits at once, namely, descriptive and prescriptive objectives; organisations can conduct self-assessments to identify the current level of sustainability as well as obtain transition guidance to increase their level of maturity.

## 2. Research methodology

The proposed CSMM in this study includes a three-step development strategy, which is in line with the guidelines described by De Bruin *et al.* (2005) and Poppelbuss and Roglinger (2011).

Overall, this strategy includes the stages of scoping, designing and evaluating. This method has also been adopted by [Macchi and Fumagalli \(2013\)](#) in their Maintenance Maturity Assessment, [Jin et al. \(2014\)](#) in their New Service Development Maturity Model and [Comuzzi and Patel \(2016\)](#) in their Big Data Maturity Model. More specifically, [Comuzzi and Patel \(2016\)](#) developed their maturity model qualitatively by conducting a literature review, performing semi-structured interviews with experts and allowing the model to be reviewed by practitioners. Similarly, [Jin et al. \(2014\)](#) developed their model qualitatively, by conducting a literature analysis and identifying the maturity domains in successful case studies. Conversely, [Macchi and Fumagalli \(2013\)](#) developed their model both qualitatively and quantitatively, by conducting a literature analysis and administering surveys to approximately 50 companies.

This mixed-method approach ([Johnson et al., 2007](#)) was also used in the present study's three-step development strategy. In this case, the qualitative aspects included content analysis and expert interviews, whereas the quantitative aspects consisted of structured questionnaires and structural equation modelling (SEM) analysis. [Table 1](#) summarises this three-step development strategy.

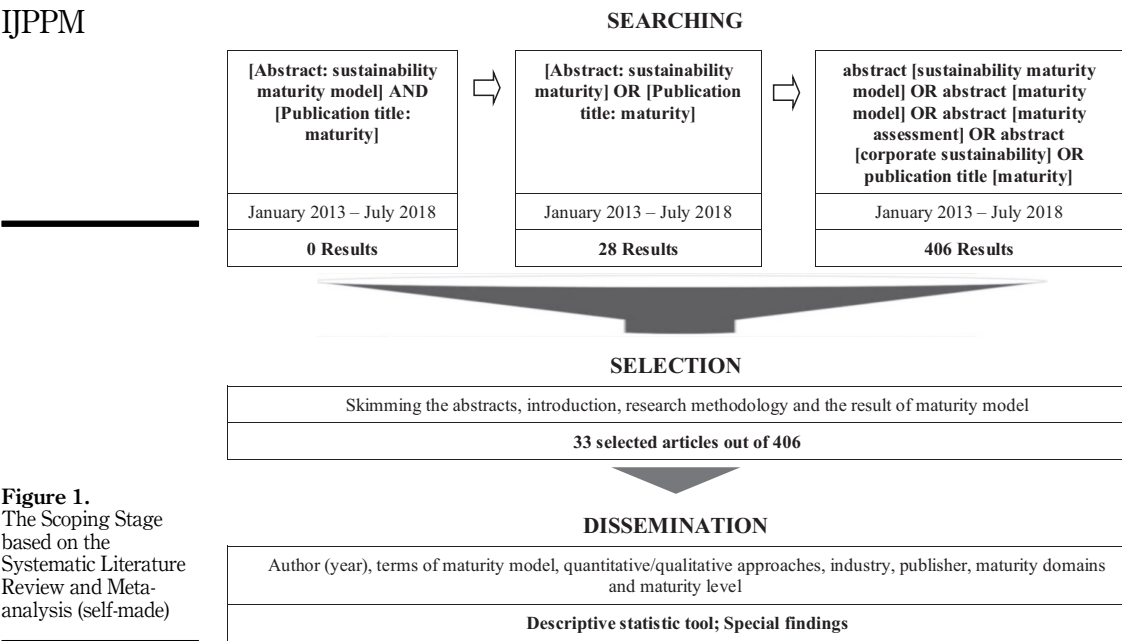
As shown in [Table 1](#), the first stage of development is scoping, the purpose of which is to map the maturity domains and levels relevant to the development of the CSMM. The methods used in this stage were a systematic literature review and a meta-analysis ([Littell et al., 2008](#); [Tranfield et al., 2013](#); [Morioka and de Carvalho, 2016](#); [Sari et al., 2019](#)).

According to [Figure 1](#), the systematic literature review began with a search for relevant articles in the Emerald database. In this case, the search filter included the abstract or research title, with terms related to the CSMM such as *sustainability*, *corporate sustainability*, *maturity*, *maturity assessment*, *maturity model*, *sustainability maturity* and *sustainability maturity model*. Another search filter was the publication period of January 2013 to July 2018. Overall, a total of 406 articles were obtained, after which a more in-depth reading of the abstracts, research methods, results and conclusions was performed to select appropriate articles and create the meta-analysis ([Fifka, 2013](#)). Only the papers that have described clearly the developed maturity model as well as its domains and levels will be selected for further meta-analysis.

The meta-analysis included summarising the results of the literature review and categorising the findings based on the type of maturity model, the research method approach (i.e. qualitative, quantitative or both), the industry, the title of the journal and the maturity domains and levels. This process produced 33 relevant articles (8.13% of the 406 articles). Finally, this stage used descriptive statistics to describe the results of the literature review, to

Three-step development	Activities	Methods
1. Scoping	(1) Identify the approaches that have been used to develop a maturity model	Systematic literature review
2. Designing	(2) Identify the maturity domains and maturity levels	Meta-analysis
	(1) Formulate the maturity domains and sub-domains based on the concept of the CSMM	Literature review, Expert interviews
	(2) Verify the concept of the CSMM through structured questionnaires and quantitative analysis	Content analysis Questionnaires Structural equation modelling
3. Evaluating	(3) Formulate the indicators or assessment rubrics in each maturity level in order to complete the design of the CSMM	Literature review
	(1) Validate the design of the CSMM	Practitioners' Feedback

**Table 1.**  
The three-step  
development strategy  
of the proposed CSMM



map the development of the existing maturity models and to identify the maturity domains and levels.

The second stage of development is designing, which began with a pilot study based on the results of the literature review and by exploring the related root theory, e.g. Epstein's Corporate Sustainability Model (Epstein and Buhovac, 2008). This was followed by expert interviews and a content analysis of various sustainability reports and websites of several organisations.

Sari *et al.*, 2019 had also found that corporate sustainability is one of the main concepts used by researchers to develop sustainability assessments. In this regard, it is important to examine Epstein's Corporate Sustainability Model (Epstein and Buhovac, 2008) and Blackburn's Sustainable Operating System (Blackburn, 2007). Both of these sources have commonalities in that they use the input–process–output approach. Epstein and Buhovac (2008) stated that the external context, internal context, business context and human and financial resources are the four inputs of leadership that will subsequently influence the preparation of a corporate sustainability strategy. Moreover, this strategy can be realised through organisational programmes, organisational systems and related efforts, all of which can improve sustainability performance. Meanwhile, Blackburn (2007) stated that a sustainability model consists of four main parts: drivers, efficient enablers, pathways and evaluators.

At this point, the following eight design questions (DQs) were formulated and used as a guide in the expert interviews:

- DQ1. In your opinion, what external factors are influential in the formulation of a corporate sustainability strategy?
- DQ2. What do you think are the internal factors that influence the formulation of a corporate sustainability strategy?



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- DQ3. Do you think that there are other factors that influence the formulation of a corporate sustainability strategy?
- DQ4. What aspects of the triple bottom line (i.e. profits, the planet and the people) are the priorities of your organisation?
- DQ5. How does your organisation translate corporate sustainability strategy into corporate sustainability action?
- DQ6. What type of corporate sustainability action does your organisation perform?
- DQ7. In your opinion, what are the benefits of implementing a corporate sustainability strategy?
- DQ8. How do you measure the impact or influence of corporate sustainability strategy implementation?
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The expert interviews involved three actors from Indonesian organisations whose implementation of a sustainability strategy gained some type of recognition (e.g. the Indonesia Green Award or the First Green Port recognition). The duration of the face-to-face interviews ranged from 1 to 2 h, and the eight DQs were used to help the researchers understand the practical experiences of implementing a corporate sustainability strategy in the actors' respective organisations.

According to [Krippendorff \(2012\)](#), content analysis is a research technique used to make valid conclusions from textual materials. The purpose of such analysis is to describe the characteristics of a document's contents, including who said what, for whom the contents was addressed and what the effects were ([Vaismoradi et al., 2013](#)). In the present study, the content analysis was in line with [Okongwu et al. \(2013\)](#); that is, it determined whether the sustainability report or organisation website discloses the answers to the aforementioned DQs. Moreover, the selected organisations in the content analysis were manufacturing companies engaged in various fields, such as technology and consumer goods, with operations on a national and/or international scale. Overall, 10 organisations were selected ([Table 2](#)), including three domestic companies (Biofarma, Astra International and AQUA) and seven overseas companies with global operations.

Using the results of the literature review, expert interviews and content analysis, the conceptual framework for the CSMM, including the domains and sub-domains, was designed. It was then tested through SEM. [Hair \(2013\)](#) stated that there are two types of SEM: covariance-based SEM (CB-SEM) and partial least square SEM (PLS-SEM). In addition, [Ghozali and Latan \(2012\)](#) and [Hair et al. \(2017\)](#) stated the differences between the two methods as follows: CB-SEM is commonly used to confirm (or reject) a theory, e.g. the confirmation of a series of systematic relationships between multiple variables that can be empirically tested, whereas PLS-SEM is mainly used to develop a theory in exploratory research. The PLS-SEM method was selected to test the model because of its ability to test models with limited data, where the collected data can be small in size and non-parametric in nature, such that it does not have to be a normal distribution or based on normal distribution assumptions. As far as sample size is concerned, [Barclay et al. \(1995\)](#) and [Chin and Newsted \(1999\)](#) suggested a "rule of 10" to determine the sample size: 10 times the number of indicators in the largest latent variable or 10 times the largest number of incoming causal arrows for any latent variable in the model. [Garson \(2016\)](#) argued for the ability of PLS to handle small samples and be able to compute under very small samples condition (even less than 20).

Overall, the survey questionnaires included two parts. The first part included questions such as the name of the organisation itself, the respondent's position in the organisation, the number of employees, the industry sector, the organisation's age, ownership, scale marketing strategies and management system and the presence (or absence) of a corporate

**Table 2.**  
Sources of  
documentary analysis

No	Organisations (Country)	Description	Source
1	Samsung (Korea)	Samsung is one of the largest electronics companies in the world	Sustainability Report 2017
2	Apple (USA)	Apple is a manufacturer of electronic equipment and computer software	Environmental Report 2017
3	General Electric (USA)	General Electric is a multinational technology company engaged in aviation, electricity, energy, health, lighting, oil and gas, energy, transportation and capital	Sustainability Report 2016
4	Qualcomm (USA)	Qualcomm is a company that manufactures semiconductors and telecommunications equipment	Sustainability Report 2016 Company Website
5	Biofarma (Indonesia)	Biofarma is a state-owned enterprise that produces vaccines and antisera	Sustainability Report 2016
6	Astra International (Indonesia)	Astra is a business group that includes seven business lines: automotive, financial services, heavy equipment and mining, agribusiness, infrastructure, logistics, information technology and property	Sustainability Report 2016
7	Toyota (Japan)	Toyota is the largest automobile manufacturer in the world	Sustainability Report 2016
8	Coca-Cola Company (USA)	The Coca-Cola Company is a beverage manufacturer	Sustainability Report 2016
9	AQUA Indonesia)	The AQUA Group is a company that manufactures bottled drinking water, with the most famous trademark	Sustainability Report 2014
10	Procter and Gamble (USA)	Procter and Gamble is an international company that produces fast-moving consumer goods	Sustainability Report 2016 Company Website

sustainability strategy and/or a sustainability report. The second part contained a Likert-type scale that measured to what extent the respondent agreed with the corporate sustainability model's domains or sub-domains. This scale ranged from 1 (strongly disagree) to 6 (strongly agree). The questionnaires were distributed (both offline and online) to 21 individuals working for organisations that have previously focused on sustainability, at least at the managerial level. After processing the results of the survey questionnaires using SmartPLS software, the sustainability maturity domains as well as their sub-domains were verified. The next step in designing the CSMM was identifying the critical requirements and formulating the indicators (as assessment rubrics for each maturity level) in order to develop the initial CSMM.

**3. Scoping the previous works of maturity models**

As mentioned in the research methodology section, a systematic literature review was performed to scope the existing maturity models. By using specific search criteria, this literature review produced 33 relevant articles out of the 406 articles. According to [Table 3](#), which presents the distribution of developed maturity models among the 33 selected articles, the number of articles increased from 4 to 12 between 2013 and 2015. In the early 1970s, Richard L. Nolan developed the Stages of Growth Model to map the maturity of information technology applications in business organisations. This was followed by Watts Humphrey's Capability Maturity Model that assessed and improved software development processes in the 1980s. Since then, such assessments have been applied in different subject areas. For example, [Macchi and Fumagalli \(2013\)](#) proposed a maintenance maturity assessment,



Reference (sorted by year)	Year (# of articles)	Maturity model	Relevance*
<a href="#">Okongwu et al. (2013)</a> <a href="#">Macchi and Fumagalli (2013)</a> <a href="#">Killen and Hunt (2013)</a>	2013 (4)	<i>Maturity of Supply Chain Sustainability Disclosure</i> Maintenance Maturity Assessment  Outcomes and Learning-based Maturity Model (for Project Portfolio Management)	<i>v</i>
<a href="#">Xiaofen (2013)</a> <a href="#">Edgeman and Williams (2014)</a> <a href="#">Brookes et al. (2014)</a> <a href="#">Hartono et al. (2014)</a> <a href="#">Islam and Brousseau (2014)</a> <a href="#">Jin et al. (2014)</a> <a href="#">Oliva (2014)</a> <a href="#">Alencar Rigon et al. (2014)</a>	2014 (7)	Enterprise Quality Management Maturity Model <i>Sustainability Enterprise Excellence Resilience and Robustness Maturity Assessment</i> Project Management Maturity Model Project Risk Management Maturity Technology Maturity Assessment	<i>v</i>
<a href="#">Alvarez et al. (2015)</a> <a href="#">Backlund et al. (2015)</a> <a href="#">Benmoussa et al. (2015)</a> <a href="#">Carroll and Helfert (2015)</a> <a href="#">de Boer et al. (2015)</a> <a href="#">Huang and Handfield (2015)</a> <a href="#">van Lith et al. (2015)</a> <a href="#">Pekkola et al. (2015)</a> <a href="#">Rendon (2015)</a> <a href="#">Secundo et al. (2015)</a> <a href="#">Souza et al. (2015)</a> <a href="#">Wilson (2015)</a>	2015 (12)	New Service Development Maturity Model Knowledge Management Maturity Model Information Security Maturity  Servitisation Maturity Model Project Management Maturity Model Capability Maturity Model Integration  Service Capability Sourcing Model  Business Process Management Maturity Model Supply Chain Maturity Model  Purchasing Maturity Model Reflective Practices Contract Management Maturity Model Intellectual Capital Maturity Model Supply Chain Process Management Maturity Model Quality Maturity Model	
<a href="#">Terouhid and Ries (2016)</a> <a href="#">Comuzzi and Patel (2016)</a> <a href="#">Dyerson et al. (2016)</a> <a href="#">Katu (2016)</a> <a href="#">Ramadan and Arafah (2016)</a> <a href="#">Secundo et al. (2016)</a> <a href="#">AlShathry (2016)</a>	2016 (8)	<i>Framework for Organisational Sustainability Excellence</i> Big Data Maturity Model  Information Technology Readiness for Small Firms Enterprise Content Management Maturity Model Healthcare Quality Maturity Assessment Model  Technology Transfer Efficiency Business Process Management Maturity Assessment	<i>v</i>
<a href="#">Tontini et al. (2016)</a> <a href="#">Parker et al. (2017)</a> <a href="#">Alach (2017)</a>	2017 (2)	Procurement and Supply Management <i>Operations Sustainability Maturity Model</i> A Seven-element Maturity Model of Performance Measurement	<i>v</i>

**Table 3.**  
Distribution of  
developed maturity  
models among the 33  
selected articles

**Note(s):** \* Relevance: the model is related to the subject of interest, i.e. sustainability

[Xiaofen \(2013\)](#) described how the quality management maturity level can be investigated, [Jin et al. \(2014\)](#) devised a new service development maturity model and [Rendon \(2015\)](#) assessed the maturity of the contract management process. Meanwhile, in the last 2 years, the paradigm of maturity model development started to shift from model development for specific business processes to more complicated systems such as the Enterprise Content

**Table 4.**  
Comparison of the  
existing sustainability  
maturity models

Management Maturity Model (Katu, 2016), the Business Process Management Maturity Assessment (AlShathry, 2016), the Big Data Maturity Model (Comuzzi and Patel, 2016), Information Technology Readiness (Dyerson et al., 2016), technology transfer (Secundo et al., 2016) and sustainability maturity (Terouhid and Ries, 2016; Parker et al., 2017).

However, among the 33 selected articles, only four maturity models were related to sustainability maturity or sustainability assessment. Table 4 compares the sustainability maturity models found in the literature review, including the maturity domains and levels in each model. As far as the development method and objectives are concerned, three out of the four models were developed using a combination of qualitative and quantitative development methods. First, Parker et al. (2017) conducted a literature review and structured interviews with experts in order to develop a sustainability maturity model that could compare the

Reference	Industry	Maturity domains	Maturity levels
Okongwu et al. (2013)	50 organisations (sustainability reports)	Seven elements of maturity: (1) stakeholders; (2) governance; (3) supply chain operations; (4) societal development sustainability; (5) supply chain sustainability; (6) TBL performance and (7) international standards Supply chain sustainability elements include the following: Use of standards, performance management, life cycle management, pollution management, relation management, employee management, profitability management and economic value	Three maturity levels of maturity are used: (1) define and report; (2) measure and manage and (3) improve and change. For supply chain sustainability, there are four levels: Initial, intermediate, advanced and world class
Parker et al. (2017)	Financial Services Organisations	Five domains: corporate sustainability, economic capital, societal capital, human capital and natural capital	Five levels: willingness to change, desire to change, ready for a change, systematic change and corporate culture
Edgeman and Williams (2014)	General	Six levels: (1) triple top-line strategy and governance; (2) process implementation, translation and execution; (3) financial and marketplace performance; (4) sustainable enterprise excellence, resilience and robustness embedded in the economic, innovation and analytic impact; (5) human ecology and capital performance and (6) social–ecological innovation and general innovation, design and continuous improvement performance	Five levels: very low maturity (low awareness), low maturity (sporadic/reactive), moderate maturity (early systematic approaches), high maturity (aligned and partially integrated) and very high maturity (deeply integrated into the culture)
Terouhid and Ries (2016)	Construction Firms	Capability areas include: leadership, policy and strategy, people, partnership and process	Five levels: inactive non-compliance, basic compliance, beyond compliance, integrated sustainability and sustainable leadership

financial organisations between developed and developing countries. Second, [Terouhid and Ries \(2016\)](#) performed a literature review to design a conceptual model of organisational sustainability excellence for construction firms. They also used the European Foundation for Quality Management and interviewed experts in order to develop and validate the model. Third, [Okongwu et al. \(2013\)](#) derived the maturity elements of supply chain sustainability from a literature review, conducted principal component analysis to identify the interconnections among the elements and assessed maturity levels, based on a content analysis of 50 sustainability reports distributed in 10 different industrial sectors. Conversely, [Edgeman and Williams \(2014\)](#) used a quantitative approach to develop their model, which was not implemented in any specific industry. More specifically, they adapted the springboard approach in their Sustainability Enterprise Excellence Model and applied the concepts of resilience and robustness in order to assess the health of an organisation.

As stated earlier, none of the four maturity models obtained from the scoping phase offered an organisational assessment scheme for implementing corporate sustainability. The maturity model developed in this study, called the CSMM, will be used by organisations as a self-assessment tool. Technically, the CSMM will be designed in the form of a matrix that maps organisational capabilities in various domains of corporate sustainability with different levels of maturity. Through this CSMM, organisations can determine the current level of readiness and help organisations to increase their level of maturity towards an ideal sustainable organisation. The development of maturity models generally uses a qualitative approach. The development of the CSMM in this study will use qualitative and quantitative methods not only to design models but also to verify them for various experts or practitioners and evaluate the feasibility of implementing the model in the context of local content and adaptability of the model for practical use. The CSMM, developed in this study, can be said to be the first sustainability maturity model developed in an Indonesian context. The result might probably illustrate the phenomenon of corporate sustainability implementation in developing countries.

#### 4. Designing the CSMM

The proposed CSMM is a maturity model that uses a matrix-type approach ([Figure 2](#)) in which the matrix is based on the maturity domains and levels. In this matrix, there is a set of indicators (along with their capability processes) that determines the criteria for each maturity level. Meeting these criteria will make the organisation eligible to move on to the next level of maturity.

##### 4.1 Formulating the maturity domains and sub-domains

On the basis of the systematic literature review, the content analysis and the expert interviews, a maturity domain framework for the CSMM was obtained. This framework was also based on Epstein's Corporate Sustainability Model ([Epstein and Buhovac, 2008](#)) and Blackburn's Sustainable Operating System ([Blackburn, 2007](#)).

Maturity Model	The Description of Capability/Process	Maturity Level		
		Level 1	Level 2	Level 3
Maturity Domain 1	Maturity Sub-domain A	Rubrics & Indicators	Rubrics & Indicators	Rubrics & Indicators
	Maturity Sub-domain B	Rubrics & Indicators	Rubrics & Indicators	Rubrics & Indicators
Maturity Domain 2	Maturity Sub-domain C	Rubrics & Indicators	Rubrics & Indicators	Rubrics & Indicators
	Maturity Sub-domain D	Rubrics & Indicators	Rubrics & Indicators	Rubrics & Indicators

**Figure 2.**  
A matrix-type maturity  
model (self-made)

In this model, there are enabling factors that place pressure (both external and internal) on organisations to implement and carry out sustainability activities. These factors become the inputs for the corporate sustainability strategy domain, after which the organisation processes these inputs and formulates a strategy. Subsequently, the organisation puts the strategy into action and obtains economic, environmental and social benefits, all of which are used to measure corporate sustainability performance. The proposed CSMM includes six maturity domains and 29 sub-domains (see [Table 5](#)).

4.2 Verifying the maturity domains and sub-domains

The process of verifying the CSMM included structured survey questionnaires and quantitative analysis using PLS-SEM and SmartPLS software. As stated earlier, this model consists of six maturity domains (hereafter referred to as the *latent variables*) and 29 maturity sub-domains (hereafter referred to as the *indicators*).

The survey questionnaires involved 21 organisations with the following profiles:

- (1) The industry sector: manufacturers (64%), distributors (23%) and those from food and beverages, logistics and insurance (4.7%).
- (2) 62% were large-scale enterprises (>100 employees), 33% were medium-scale enterprises and 5% were small-scale enterprises (<20 employees).

**Table 5.**  
Description of the  
proposed CSMM:  
Maturity domains and  
sub-domains

Six maturity domains	Maturity sub-domains	
CS driver (external)	EP1	Compliance with government and institutional regulations
	EP2	Place of marketing for products/services produced
	EP3	Market demand for greener products/services
	EP4	Demands or pressure from external stakeholders
	EP5	Support from the realisation of a government programme
	EP6	Availability of information related to raw materials
CS driver (internal)	IP1	Idea/demand for a change from the management towards the <i>sustainability</i>
	IP2	The seriousness of an organisation to carry out <i>sustainability</i>
	IP3	The risk of the goods produced
	IP4	Supporting the capacity of human resources
	IP5	Fund availability/allocation
	IP6	The risk management of products/services
	IP7	Philosophy/values adopted by the organisation
	IP8	Appeal/benefits for internal <i>stakeholders</i>
	IP9	Awareness of being responsible for environmental conservation
	IP10	Standard of ethics and work cultures
	IP11	<i>Goals</i> to be achieved by the organisation
	IP12	Reputation/image to be built by the organisation
CS strategy	CSS1	Leader's commitment to realising the vision and mission
	CSS2	Leader's competence to integrate <i>sustainability</i> into the organisation's strategy
	CSS3	To adjust the organisational structure and the applied strategy
	CSS4	The policy made by <i>top management</i> to execute the strategy
CS action	CSA1	Corporate Philanthropy
	CSA2	Corporate Social Responsibility
	CSA3	Corporate Sustainable Management
	CSA4	Sustainable Entrepreneurship
CS performance	CSP1	Economic benefit
	CSP2	Environmental benefit
	CSP3	Social benefit

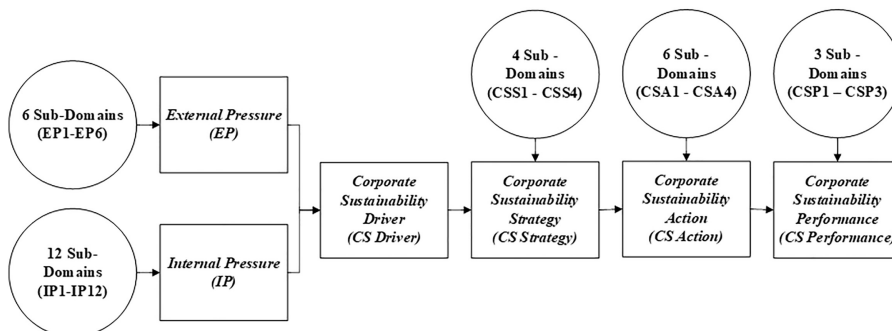
- (3) 57% had national coverage of marketing, 24% had international coverage and 19% had regional coverage.
- (4) 48% were public companies/plcs.
- (5) 48% had a corporate sustainability strategy.
- (6) 48% produced sustainability reports.

The analysis of the proposed CSMM (as shown in Figure 3) consisted of two stages: (1) a measurement model analysis, i.e. an analysis of the outer model, including the relationship between the latent variables and their indicators; and (2) a structural model analysis, i.e. an analysis of the inner model, including the relationship between the latent variables. The reason for these two stages was that it must be ensured that the relationship between the latent variables and their indicators (i.e. the measurement model) meets the standard limits in order for the relationship between the latent variables (i.e. the structural model) to provide valid results.

Moreover, the measurement model analysis was achieved by testing convergent and discriminant validity. Convergent validity determines whether a set of indicators effectively represent the latent variables (Sarwono and Narimawati, 2015), which is achieved by examining the outer loading value, the  $p$ -value, the average variant extracted (AVE) value and composite reliability. It also includes the following requirements: an outer loading value of at least 0.4; a  $p$ -value  $< \alpha = 0.05$ ; 0.50 for the AVE value and 0.70 for composite reliability (Sholihin and Ratmono, 2013; Woo *et al.*, 2013). The indicators that do not meet these requirements are extracted in the subsequent analysis. According to the convergent validity test results in Table 6, the AVE value was below the minimum standard, and through several iterations, six indicators were discarded in the analysis (IP5, IP8, IP9, IP10, IP11 and IP12).

Discriminant validity determines whether two different variables show adequate differences (Sarwono and Narimawati, 2015). In this case, the loading value is the loading value of the indicator of the latent variable itself, whereas the cross-loading value is the loading value of the indicator of other latent variables. If the indicator includes a cross-loading value that is higher than the loading value, then the indicator must be extracted from the latent variable. On the basis of the discriminant validity test results, two indicators must be discarded, i.e. EP4 and CSS3, since their cross-loading values were higher than the loading value.

In the analysis of the structural models, testing was conducted to determine whether the relationship between the latent variables was significant. This was achieved through bootstrapping, which focuses on the relationship between the  $p$ -values and the latent variables in the model. In this regard, the following hypotheses are posited:



**Figure 3.**  
Structure of the  
Proposed CSMM (the  
base model)

**Table 6.**  
Convergent and  
discriminant validity  
tests of the outer model

Latent variable	Composite reliability	Average variant extracted	Number of indicators	Outer loading (min; max)	Significance (min; max)
<i>Convergent validity</i>					
CS Action (CSA)	0.832	0.566	6	(0.588; 0.800)	(0.000; 0.001)
CS Performance (CSP)	0.845	0.660	12	(0.429; 0.725)	(0.000; 0.011)
CS Strategy (CSS)	0.869	0.627	4	(0.667; 0.855)	(0.000; 0.000)
External Pressure (EP)	0.874	0.538	4	(0.502; 0.907)	(0.000; 0.004)
Internal Pressure (IP)	0.864	0.362*	3	(0.497; 0.966)	(0.000; 0.033)
<i>Discriminant validity</i>					
External Pressure EP4	The loading factor of EP4 on EP = 0.72. The cross-loading factor of EP4 on CSD = 0.816, and the cross-loading factor of EP4 on IP = 0.825				
CS Strategy CSS3	The loading factor of CSS3 on CSS = 0.659. The cross-loading factor of CSS3 on CSP = 0.667, and the cross-loading factor of CSS3 on EP = 0.676				
<b>Note(s):</b> * The value is lower than the minimum standard					

- H0. There is no significant effect between the latent variables.
- H1. The External Pressure variable has a significant effect on the CS Driver variable.
- H2. The Internal Pressure variable has a significant effect on the CS Driver variable.
- H3. The CS Driver variable has a significant effect on the CS Strategy variable.
- H4. The CS Strategy variable has a significant influence on the CS Action variable.
- H5. The CS Action variable has a significant effect on the CS Performance variable.
- H6. The CS Driver variable has a significant effect on the CS Action variable.

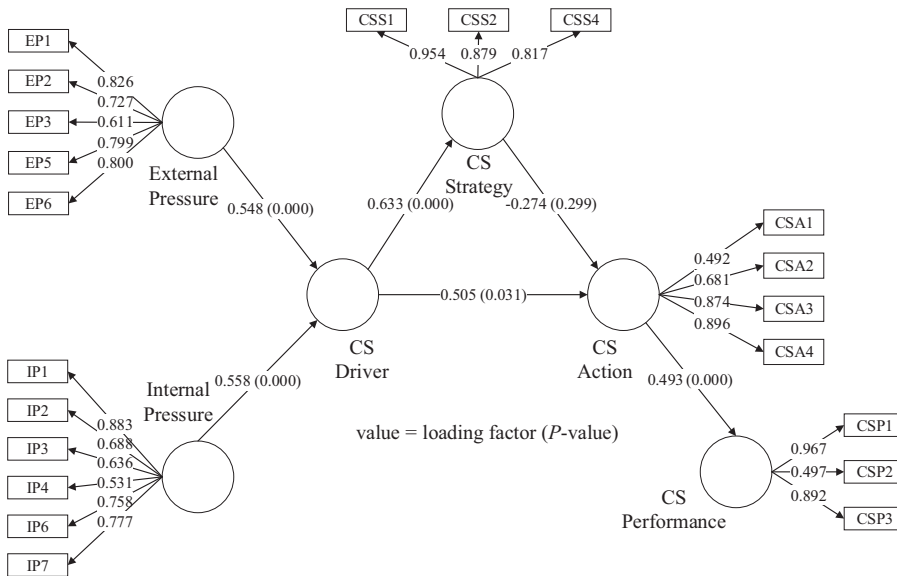
The decision to reject H0 is made if the *p*-value is less than  $\alpha = 0.05$ . Bootstrapping was also performed, the results of which are shown in Table 7.

On the basis of the results in Table 7, H1, H2, H3 and H5 were significant, whereas the relationship between the CS Strategy variable and the CS Action variable (H4) was not significant. Thus, a modification of the initial model was made (Figure 4), by adding the relationship between the CS Driver variable directly to the CS Action variable (H6). This was also based on the findings that Indonesian companies tend to conduct sustainability efforts without having a CS Strategy in place.

**Table 7.**  
Results of the inner  
model analysis

Hypotheses	Relationship between the latent variables	Base model		Modified model	
		<i>p</i> -value	Test result	<i>p</i> -value	Test result
H1	External Pressure → CS Driver	0.000	Significant	0.000	Significant
H2	Internal Pressure → CS Driver	0.000	Significant	0.000	Significant
H3	CS Driver → CS Strategy	0.000	Significant	0.000	Significant
H4	CS Strategy → CS Action	0.991	Not significant	0.299	Not significant
H5	CS Action → CS Performance	0.000	Significant	0.000	Significant
H6	CS Driver → CS Action	–	–	0.031	Significant





**Figure 4.**  
The Validated CSMM  
(modified model) based  
on PLS-SEM

Moreover, the relationship between the CS Strategy variable and the CS Action variable was insignificant, whereas the relationship between the CS Driver variable and the CS Action variable was significant. This indicates that the CS Strategy variable does not have any significant influence on the implementation of sustainability activities. This also shows that the indicators that compile the CS Strategy variable, such as the commitment of leaders in realising the vision and mission (CSS1), the ability of leaders to integrate sustainability into the organisational strategy (CSS2), aligning the organisational structure with the implemented strategies (CSS3) and the existence of policies formed by top management to oversee the implementation of such strategies (CSS3), do not have a significant influence on sustainability efforts. In other words, without these factors, the organisation can still conduct such activities. Finally, on the basis of the aforementioned results, the presence of external and internal pressure (the CS Driver variable) is the main factor that drives an organisation to carry out sustainability efforts (the CS Action variable).

#### 4.3 Maturity levels

Although maturity levels tend to range from three to six levels (Jin *et al.*, 2014), the results of the scoping stage (see Table 8) indicated that the maturity models were generally classified into five maturity levels. Although the definitions of these five maturity levels have evolved over time, the original definitions are presented as follows (Paulk *et al.*, 1995):

Level 1 – The initial stage: Processes that are unpredictable, poorly controlled and reactive. These are organisations in which the processes are ad hoc, with no planning.

Level 2 – The managed stage: Processes that are often reactive. These are organisations in which some macro processes are mapped and executed, with some degree of consistency. However, many processes remain uncontrolled.

Level 3 – The defined stage: Processes that are often proactive. These are organisations in which all basic processes are defined, with some degree of control. They are also concerned about storing data and using indicators.

**Table 8.**  
Comparison of the  
different maturity  
levels

Reference	Levels	Terms of the maturity levels			
		Define and report	Implemented without integration and control	Measure and manage	Improve and change
Okongwu <i>et al.</i> (2013)	3	Unaware	Implemented without integration and control	Applied without a comprehensive way	Adequate management
Tontini <i>et al.</i> (2016)	4	Unaware	Structured	Oriented	Integrative
Oliva (2014)	4	Insufficient	Well-structured	Managed	Optimised
Alvarez <i>et al.</i> (2015)	4	Informal	Average level	Domestically advanced	World class
Xiaofen (2013)	5	Lower level		Defined	Internationally advanced
Macchi and Fumagalli (2013)	5	Initial	Managed	Defined	Quantitatively managed
Brookes <i>et al.</i> (2014)	5	Initial	Structured	Institutionalised	Optimised
Pekkola <i>et al.</i> (2015)	5	Initial	Informal	Formal	Optimised
Huang and Handfield (2015)	5	Ad hoc	Defined	Managed	Optimised
Rendon (2015)	5	Ad hoc	Basic Repeatable	Structured	Optimised
Wilson (2015)	5	Ad hoc	Sporadic/reactive	Defined	Continuous
Edgeman and Williams (2014)	5	Low awareness		Early systematic approaches	Deeply integrated into the culture
Souza <i>et al.</i> (2015)	5	Foundation	Structure	Vision	Dynamic
Katuu (2016)	5	Unmanaged	Incipient	Formative	Proactive
Ramadan and Arateh (2016)	5	Chaotic	Primitive	Structured	Proficient
Secundo <i>et al.</i> (2016)	5	Awareness	Defined	Managed	Sustained stage
Terouhid and Ries (2016)	5	Inactive non-compliance	Basic compliance	Beyond compliance	Sustainability leadership
Parker <i>et al.</i> (2017)	5	Willing to change	Want to change	Ready for change	Corporate culture
Benmoussa <i>et al.</i> (2015)	6	Incomplete	Managed	Defined	Optimised
Alencar Rigon <i>et al.</i> (2014)	6	Non-existent	Repeatable but intuitive	Defined	Optimised

Level 4 – The quantitatively managed stage: Processes that are measured and controlled. These organisations apply process management in which consistent information is stored. They also use indicators to monitor processes and achieve the established goals.

Level 5 – The optimised stage: The main focus is on process improvement. These organisations not only provide training on processes for their staff members but also are involved in their improvement.

Although many researchers tend to use five maturity levels, there are those who prefer an even number of levels. For example, [Alencar Rigon \*et al.\* \(2014\)](#) and [Benmoussa \*et al.\* \(2015\)](#) used up to six levels, whereas [Oliva \(2014\)](#); [Alvarez \*et al.\* \(2015\)](#) and [Okongwu \*et al.\* \(2013\)](#) used up to four levels. More levels are chosen to explain more specifically a certain level of maturity or a smaller number of maturity levels are formulated by combining several similar maturity levels into one. In the present study, the proposed CSMM includes three maturity levels. This is due to the consideration of organisations to facilitate them in classifying organisational achievements in the most ideal conditions (level 3), the most primitive conditions (level 2) or conditions in between (level 2). For the conditions of low awareness of corporate sustainability implementation, the usage of three levels becomes a solution to map the levels in such a way that the capabilities between levels are mutually exclusive and easy to be distinguished.

#### 4.4 The proposed CSMM

On the basis of the validation results, the proposed CSMM ([Table 9](#)) will map those maturity domains within three maturity levels. The final step is to prepare the relevant indicators that can be tracked through a literature review and evaluated by practitioners. The three maturity levels are defined as follows:

Level 1 – The initial stage: Immature organisations in which the processes are undefined and applied on an ad hoc basis.

Level 2 – The managed stage: Organisations in which process management is weak, because of organisational deficiencies. Although the processes are defined and some standards are established, some indicators are determined but not measured.

Level 3 – The optimised stage: Mature organisations in which process management is applied to measure organisational performance and to evaluate process improvement efforts/programmes.

## 5. Discussion and implications

The placing of Indonesia in the bottom 12 (out of 65 countries), the fact proposed by RobecoSAM's Corporate Sustainability Assessment per October 2017, raised the initial hypothesis of whether it is associated with the low awareness of corporate sustainability implementation in the country as a whole. Based on the examination of sustainability reports, several noteworthy premises can be made. First, after examining approximately 50 sustainability reports produced by Indonesian organisations from 2010 to 2017, the majority of the organisations have mistakenly considered corporate social responsibility programmes as corporate sustainability deeds, both in the form of community development programmes and philanthropic activities. Second, after probing sustainability reports from 2005 to 2013, the industry sectors of Indonesian organisations, which had participated in developing the sustainability reports, were extending from the organisations in exploring natural resources to those in the infrastructure, consumer goods, banking, electronics and property sectors.

Maturity domains	Relevant indicators	Maturity level 1: The initial stage	Maturity level 2: The managed stage	Maturity level 3: The optimised stage
<i>Corporate sustainability driver</i>				
Anticipating the external pressure of compliance with government and institutional regulations	Availability of a national policy (Sharma and Balachandra, 2015) Legal compliance Rahdari and Rostamy (2015); and Penalties for non-compliance Hervani <i>et al.</i> (2005).	Regulations are not applied. Compliance of organisations with regulations is reactive. Anticipation is done when problems arise (e.g. receiving a reprimand)	Policies and regulations are identified. The organisation includes defined processes related to fulfilling regulatory compliance	Organisations are involved in the associations (in their industry), which play active roles in the formulation of regulations
Anticipating the internal pressure from the management in the direction of sustainability	Sustainability initiatives Tan <i>et al.</i> (2015); Awareness among managers Colicchia <i>et al.</i> (2013); and Return on investment Figge <i>et al.</i> (2004).	The management team only focuses on aspects of profit and have little-to-no concern for sustainability issues, knowledge or practices There are no dedicated resources to implement any process of corporate sustainability	The management team has a better acquaintance of sustainability, knowledge and practices Sporadic efforts and some resources are dedicated (e.g. to raise awareness or establish standards)	The management team incorporates initiatives related to corporate sustainability into the formulation of a strategy More resources are dedicated to improving the implementation of corporate sustainability
<i>Corporate sustainability action</i>				
Programmes/ Activities	Funds donated to the community Epstein and Buhovac (2008) Energy productivity or total energy consumption Rahdari and Rostamy (2015) Free hazardous materials or the usage of biodegradable packaging Lin <i>et al.</i> (2010); and Renewable energy usage policy Suwartha and Sari, (2013).	Corporate sustainability activities in the form of philanthropic activities (e.g. donations/ contributions do not have a direct relationship with business activities)	Activities that arise from stakeholders' demands, which lead to cooperation with stakeholders (e.g. corporate social responsibility programmes) Activities are also related to efforts to resolve sustainability issues that arise from the core business (e.g. waste management and energy efficiency)	Proactive and mature sustainability efforts, in which organisations integrate sustainability into their strategies and business goals This activity will provide benefits to companies related to the top financial line (e.g. process and product innovation using green technology)

**Table 9.**  
The proposed CSMM

(continued)

					Corporate sustainability maturity model
Maturity domains	Relevant indicators	Maturity level 1: The initial stage	Maturity level 2: The managed stage	Maturity level 3: The optimised stage	
<i>Corporate sustainability performance</i>					
Economic, Social or Environmental Benefits	Operating or net profit <a href="#">Feil et al. (2015)</a> Emission of toxic substances into the air, water and soil <a href="#">Jasinski et al. (2016)</a> Increase employment opportunities for the local community <a href="#">Lin et al. (2010)</a>	Sustainability indicators are defined, but they only cover one dimension of sustainability benefits (usually economic benefits) There is infrequent monitoring with no actions taken	A range of sustainability indicators covering two dimensions of sustainability benefits. They are defined and measured, but the metrics are not fully aligned with business goals Some corrective actions are taken	Balanced sustainability indicators, including economic, social and environmental benefits, are defined and measured. The metrics are fully aligned with business goals Actions are taken to ensure that the organisations achieve their business goals	

Table 9.

Table 9.

Third, several Indonesian companies utilised comprehensive approaches and strategic frameworks that not only integrated sustainability strategies into their business processes but also synergised environmental alignment and community empowerment activities in order to achieve organisational profits. However, these mature organisations have not involved themselves in producing sustainability reports or conducting sustainability assessments. On the basis of these, the initial hypothesis was defined as follows: many Indonesian organisations are not fully aware of the importance of sustainability benefit.

The result of statistical testing based on PLS-SEM has supported the initial hypothesis. It is important to note some interesting findings based on the 21 Indonesian organisations in this study. First, there are some organisations that conduct sustainability programmes/activities, without actually having a strategic plan that is aligned with their organisational goals. Second, the majority of the organisations have conducted sustainability efforts, due to both internal and external pressure. Third, the factors driving organisations to conduct corporate sustainability generally depend on the leadership. Finally, although various factors, such as organisational reputation gained from implementing corporate sustainability, attractiveness to employee recruitment and awareness of environmental sustainability, seem relevant in this era of globalisation, they were insignificant for Indonesian organisations.

The practical implication of model verification based on PLS-SEM indicated that organisations have a tendency to execute sustainability programmes independently from how organisations anticipate external and internal pressures and translate them into corporate strategy management. To achieve the ideal model, the organisations need to improve themselves; they are required to be able to translate the organisation's external and internal pressures into harmonious sustainability activities as well as optimising the organisation's strategies so that programmes and indicators are aligned to achieve organisational goals. Not only indicators measured in various dimensions of triple bottom line and many sustainability programmes are run, but all of them are probably only for the purpose of exposure without getting the real benefits of implementing corporate sustainability.

The final result of this research, i.e. the design of the CSMM itself, will be able to provide theoretical and practical implications. Theoretically, the existing corporate sustainability

models that define causal relationships start from anticipating corporate sustainability drivers and move towards formulating strategies and programmes, as well as measuring the sustainability performance, have been improved into a corporate sustainability maturity model. The proposed maturity model is detailed in various sub-domains that have been scientifically verified, having clearly defined indicators and rubric capabilities at each maturity level. In practical terms, the CSMM is offered as a self-assessment readiness tool and becomes more concrete to be used rather than becoming a paradox of a conceptual framework. The CSMM makes it easy for organisations to determine directions and strategies when they are at a certain maturity level and want to move to a better maturity level because the targeted capabilities are clearly defined.

## 6. Conclusions and future recommendations

The proposed CSMM in this study was developed by using a three-step development strategy (i.e. scoping, designing and evaluating). It also used a mixed-method approach that combined several qualitative and quantitative methods such as a systematic literature review, practitioner/expert interviews, content analysis, survey questionnaires and PLS-SEM analysis. In addition, the domains, sub-domains and maturity levels in this model were not only obtained through a literature review of published scientific articles and sustainability reports from various organisations worldwide, but this particular maturity model was also verified and validated through practitioners' evaluations and the sustainability reports from various industries in Indonesia. Therefore, this CSMM can be claimed as the first sustainability maturity model developed for readiness assessment in an Indonesian context.

As far as generalisability is concerned, the use of systematic literature review in this study is limited to the Science Direct and Emerald databases. In future, the use of systematic literature review can be accelerated by using the bibliometrics method combined with the use of software so that it can provide benefits both in the quantum of selected scientific articles and time efficiency. The verification of the model was based on a limited number of organisations because of difficulties in finding organisations that have implemented corporate sustainability in Indonesia; however, it can be extended to the involvement of more organisations in Indonesia or to cross-country organisations for comparison purposes.

Another future recommendation is that further evaluation of this CSMM can include conducting practical maturity assessments in real-world organisations, particularly those in the same industries. This can also be useful for comparing the achievements of specific maturity domains as well as the benefits of benchmarking among various organisations. Other possible directions for future research can include the assessment process such as interviews and visits to various organisations as well as content analysis on sustainability documents can be improved through faster and more efficient assessment methods.

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